ORIGINAL

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Review of Part 15 and other Parts of the Commission's Rules	)	ET Docket 01-278
	)	RM-9375
	)	RM-10051
	)	
	)	
	)	

To: The Commission

COMMENTS OF LINEAR CORPORATION

Pursuant to Section 1.415 of the Commission's Rules,[1] Linear Corporation (hereinafter, "Linear"), by counsel, respectfully submits its comments in response to the above referenced *Notice of Proposed Rule Making and Order*[2] (hereinafter, "NPRM"). The NPRM proposes to review and update certain rule sections contained in Parts 2, 15 and 18 of the Commission's Rules. Although Linear generally supports the Commission's proposed revisions, Linear respectfully requests that the Commission take into consideration the comments and recommendations as presented herein. In response to the NPRM, Linear states the following:

Linear Is An Interested Party

1. Linear is a major manufacturer of wireless communication devices. A majority of Linear's equipment operates under Part 15.231 of the Commission's Rules for the remote control of garage doors and wireless home security.[3] Some equipment is also connected to the Public Switched

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[1] 47 C.F.R. § 1.415.

[2] *See, In the Matter of Review of Part 15 and Other Parts of the Commission's Rules, Notice of Proposed Rule Making and Order* in ET Docket 01-278, RM-9375, RM-10051 (Released: October 15, 2001) (hereinafter, "*NPRM*").

[3] 47 C.F.R. § 15.231.

Telephone Network (PSTN) under Part 68 of the Commission's Rules.[4] Linear sells and operates internationally, but the primary customer base is in the United States and Canada.

2. Linear has well over 200 Part 15 devices currently certified before the Commission as well as other devices operating under the Part 95 Radio Control (R/C)[5] and Family Radio Service (FRS)[6] Rules. In addition, under Part 15, Linear manufactures self-verified unintentional radiators (i.e. computer accessories, receivers and other digitally controlled products).

3. Linear was a pioneer in the manufacturing of digital wireless control equipment. Linear helped to standardize the testing of low powered wireless transmitters under the FCC/OST MP-1 1982 testing requirements. Numerous modifications to those test requirements have been made over the years, with the current C63.4-2000 test procedure still having many similarities to the original MP-1 1982 tests.

Proposed Revisions To Part 15

4. Linear is concerned with the Commission seeking comment on "[w]hether there are any other Part 15 rules designed to protect sensitive services such as government operations that should otherwise be modified."[7] Specifically, Linear believes that such a statement by the Commission may lead to an increase in the number and/or range of the current "forbidden bands" under Section 15.205(a).[8] While it may be true that certain commercial and government operations interfere with Part 15 devices, to Linear's knowledge, properly operating Part 15 devices below 1 GHz do not cause harmful interference with licensed radio services. Linear is especially concerned that future UHF and microwave Part 15 products might become so

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[4] 47 C.F.R. § 68.

[5] 47 C.F.R. § 95.201, *et seq.*

[6] 47 C.F.R. § 95.191, *et seq.*

[7] *NPRM* at ¶ 9.

[8] 47 C.F.R. § 15.205(a).

encumbered with restrictions on spurious emissions and "forbidden bands" that it will be virtually impossible to manufacture such products at a reasonable cost.

5. In addition, future commercial and government usage of frequencies above 1.0 GHz will most probably involve directional point to point (including satellites), digital spread spectrum, broadband, and other highly secure modes of communications. Linear proposes that the permissible spurious emissions be increased for frequencies above 1.0 GHz. Linear's proposal is to permit a 3 dB increase in permissible spurious emissions above the current 500 uV/mtr at each octave break (*i.e.* 2, 4, 8, 16 GHz, etc.) under Section 15.209(a).[9] For Example:

>960 MHz	500 uV/mtr @ 3 meters
>2 GHz	700 uV/mtr @ 3 meters
>4 GHz	980 uV/mtr @ 3 meters
>8 GHz	1400 uV/mtr @ 3 meters
>16 GHz	2000 uV/mtr @ 3 meters
>32 GHz	2700 uV/mtr @ 3 meters
>64 GHz	3700 uV/mtr @ 3 meters

6. Linear's proposal is an effort to balance the possibility of interference with the practical side of commercial construction. Engineering is a trade off between cost, production, time-to-market, and available technology. From a regulatory point of view, it would appear that the best wireless device would be a product that emits no spurious energy and has zero fundamental RF power output. However, such a product would be impractical and unmarketable. Linear asserts that the limits described above will ensure that products are practical to construct and provide spurious emission limits that will not interfere with licensed microwave services.

Receivers Operating Above 960 MHz

7. Although Linear does not currently make any devices in the microwave frequency range, Linear does not wish to see receiver devices, such as radar detectors, legislated out of existence based solely on their purpose. There are a large number of ham radio devices and other experimental microwave radios that are based on modified Part 15 microwave motion detectors

[9] 47 C.F.R. § 15.209(a).

and commercial radar detectors. If the permissible spurious emission limits were to increase above 2.0 GHz, practical products should still be possible. With well-designed circuits, products can comply with increased spurious emission limitations and not cause harmful interference.

Data Transmission By Remote Control Devices

8. Linear commends the Commission for its forward thinking about future technology rather than reacting to technology after it has matured and comes knocking at the door. Linear supports the change proposed by the Commission to delete the prohibition of voice and/or data transmissions by remote control devices. The current timing requirements should be adequate in a well-designed system so long as the voice and/or data transmissions are sent in a digitally encoded burst. As an example, with a charge-coupled-device (CCD) solid state, low power, television camera, it now seems possible to incorporate a single frame of a television image in a compressed data format when a motion detector or glass break alarm transmitter sends an alarm message. The image of the protected area along with the alarm message could then be sent to the central station to confirm an actual alarm as opposed to a false alarm.

Radio Frequency Identification Systems

9. Linear supports the harmonization of rules between Europe and the United States. The increase in signal levels appear to have little chance of causing harmful interference. The 433-435 MHz frequency range in Europe is considered similar to the ISM frequency range regulated under Part 18 of the Commission's Rules here in the United States. European products similar to those Part 15 devices in the United States have been sold at 433.92 MHz without any known cases of interference to licensed radio services. Linear supports the usage of 433-435 MHz for Part 15 RFID devices as well as security applications under Section 15.231 of the Commission's Rules. Furthermore, Linear recommends that the rules reflect the common usage in Europe at approximately a 10 mW average ERP power level. With only a 10 mW signal level, the

opportunity to use a common product in the United States and Europe could help make better wireless security systems and expand the potential product base without a significant possibility of interference to licensed users.

Exemption For Very Low-Powered Devices

10. The certification process is timely and burdensome for the manufacturers of very low-powered devices. Very low-powered devices are unlikely to cause harmful interference to licensed radio services and the frequency range of use will limit the propagation of the radio fields. Therefore, Linear supports the Commission's proposal to exempt devices operating below 490kHz from certification if the maximum field strength emitted is more than 40 dB below the applicable Part 15 limits. This will permit new products to ascend to the market at an increased rate and in a more cost-effective manner.

Information to the User

11. Linear supports the proposed changes to the "user instruction manuals." It should make no difference if the manuals are printed on paper, stamped in the form of a CD-ROM or are available from the manufacturer on the Internet. The results will be the same – the user is informed of restrictions in the operation of the device.

12. The original purchasers of a physical device (computer accessory, receiver, transmitter, etc.) must be provided with instructions that will include a 3.5" disk, CD-ROM, paper instruction manual or the equivalent. In the unlikely event that a physical device is sold with no user installation documentation, except for a web address where the instructions may be found, a technical user will have no problem finding the required information.

13. Equipment sold without operating software and/or instruction manuals will need to have a warning in the advertising literature that the user must have access to the Internet to get critical operating information. Since most users of sophisticated computer equipment likely have Internet access, this will not pose a problem. A prominent warning in the advertising or sales

brochure will be sufficient, in almost every case, to keep a non-technical person from purchasing the product.

14. In the case of web instruction manuals, Linear assumes that these will be in the form of updates to the original instruction manuals or programs used to make the device work. At the present time, web sites offer updates (often for a fee but usually free) to licensed or registered users. A web site update should be considered no different from an original CD-ROM or paper instruction manual.

Family Radio Service Equipment Measurements

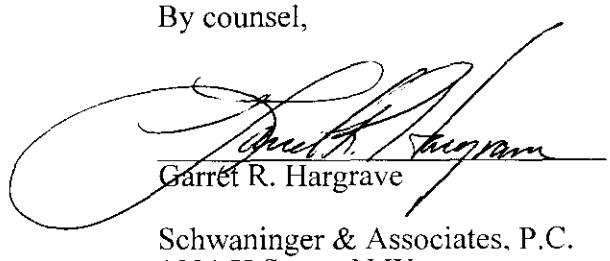
15. Linear supports the changes to the temperature range of frequency measurement for Family Radio System (FRS) Part 95 transceivers. The practical problems of making consumer devices that can operate to -30 °C and hold this level of frequency tolerance are exceedingly costly and difficult. Almost every battery technology available in a consumer product becomes inoperable below about -20 °C. Since most FRS radio sets are battery operated and portable, a -30 °C low temperature operating requirement does not make practical sense.

Conclusion

Linear firmly lends its support to those proposed revisions regarding data transmission by remote control devices, radio frequency identification systems, exemptions for very low-powered devices, and FRS frequency stability measurements. Furthermore, Linear respectfully requests that the Commission carefully consider those concerns and proposals stated herein so as to ensure that any proposed revision is reviewed in an overly objective manner.

Respectfully submitted,
Linear Corporation

By counsel,



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Dated: 02/12/02